

Amendment and Response Under 37 C.F.R. 1.311

Applicant: Harry A. Loder et al.

Serial No.: 09 992,212

Filed: November 15, 2001

Docket No.: 55243US09

Title: APPARATUS AND METHOD FOR CONTROLLING THE BEND RADIUS OF AN OPTICAL FIBER CABLE

REMARKS

In the Final Office Action mailed December 31, 2002, claims 1-6 were rejected. With this Amendment, independent claim 1 is amended and arguments for patentability are presented. In addition, independent claim 6 is cancelled from the application.

Claim Rejections under 35 U.S.C. § 102

Claims 1 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Savegh et al. (U.S. Patent No. 5,182,785). Savegh et al. is cited as disclosing an optical fiber with all the limitations set forth in the claims. Specifically, Savegh et al. is said to disclose a method for controlling the bend radius of at least a portion of an optical fiber comprising the steps of: providing a jacket of a heat shrinkable-material; placing the jacket around the fiber; bending the portion of the fiber at a desired bend angle; and shrinking the jacket around the optical fiber. Savegh et al. is also said to disclose an optical fiber apparatus with structural limitations resulting from such described method.

Savegh et al. relates to a **high-flex** optical fiber coil cable. The flexible coiled optical fiber cable has an expanded PTFE buffer layer with a jacket to provide a cable useful in **high-flex** environments. The expanded PTFE buffer layer has a low compression modulus to minimize microbending losses in the optical fiber. The expanded PTFE buffer layer further has a high tensile modulus to aid in load sharing with the optical fiber (see column 3, lines 10-14). The expanded PTFE buffer layer thus provides for the cable a good extension-to-retraction ratio owing to the absorption of mechanical stresses by the PTFE layer during extension of the cable (see column 4, lines 27-30). The jacket layer must be either heat settable or possess elastic memory so that it will hold the coil shape when the coil is formed (see column 4, lines 16-18). Clearly, the invention of Savegh et al. provides a highly flexible

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In contrast, amended independent claim 1 makes clear that shrinking the jacket around the optical fiber causes the optical fiber to maintain the desired bend angle. Thus, the present invention sets and maintains the optical cable at a desired bend angle, while the invention of Savegh et al. provides a cable in which maintaining a particular or desired bend angle is neither intended or nor desirable. In fact, in Savegh et al. maintaining the optical fiber at a particular bend angle would result in an inflexible cable, in direct conflict with the intended use of the cable. Thus, Savegh et al. in fact teaches away from the invention of the present application. Accordingly, Savegh et al. cannot anticipate the claimed limitations of amended independent claim as currently recited. Therefore, withdrawal of the rejection of independent claim 1 under 35 U.S.C. § 102(b), and allowance of that claim, is respectfully requested.

Independent claim 6 has been cancelled from the application, rendering the rejection of that claim moot.

Claim Rejections under 35 U.S.C. § 103(a)

Claims 2-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Savegh et al. in view of Daoud (U.S. Patent No. 6,263,144). Savegh et al. is said to disclose an optical fiber with all the limitations as set forth in the claims, except for bending the fiber in two curves, which are in different planes. Daoud is cited as disclosing an optical fiber routing device having two curves which are in different planes. The Examiner finds that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Savegh et al. to have the fiber bending in two curves of different planes.

Claims 2-5 depend from amended independent claim 1, which is believed in condition for allowance for the reasons discussed above. Accordingly, claims 2-5 are also believed to be in condition for allowance. Therefore, withdrawal of the rejection of claims 2-5 under 35 U.S.C. § 103(a), and allowance of those claims, is respectfully requested.

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CONCLUSION

Neither Savegh et al. or the combination of Savegh et al. and Daoud teach, show, or suggest the claims as amended. Applicant therefore respectfully requests allowance of the claims as presented herein.

No fees are required under 37 C.F.R. 1.16(b) or (c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 500471.

Attached hereto is a marked-up version of the changes made to the specification and/or the claims by the current Amendment. The attached pages are captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**".

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this response.

Respectfully submitted,

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By their attorneys,

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CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Box AF, Commissioner for Patents, Washington, D.C., 20231 on this 27th day of February, 2003.



EXPEDITED PROCEDURE
Examining Group Number 2874

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Harry A. Loder et al.	Examiner:	Sung H. Pak
Serial No.:	09/992,212	Group Art Unit:	2874
Filed:	November 5, 2001	Docket No.:	55243US019
Title:	APPARATUS AND METHOD FOR CONTROLLING THE BEND RADIUS OF AN OPTICAL FIBER CABLE		

AMENDMENT AND RESPONSE UNDER 37 C.F.R. 1.116

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Box AF

Commissioner for Patents
Washington, D.C. 20231

Dear Sir/Madam:

This Amendment is in response to the Final Office Action mailed December 31, 2002, in which claim 1-6 were rejected. With this Amendment, claim 1 is amended and claim 6 is cancelled from the application. Please amend the claims as presented below.

IN THE CLAIMS

Please cancel claim 6.

Please amend claim 1 as follows:

1. (Amended) A method for controlling the bend radius of at least a portion of an optical fiber cable having at least one optical fiber, the method comprising the steps of:

- a. providing a jacket of a heat shrinkable-material;
- b. placing the jacket around the portion of the optical fiber cable;
- c. bending the portion of the optical fiber cable at a desired bend angle; and
- d. shrinking the jacket around the optical fiber cable by the application of heat causing

the optical fiber cable to assume a desired bend radius.

wherein the step of bending the portion of the optical fiber cable at a desired bend angle includes bending the optical fiber cable in at least two curves.

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Applicant: Harry A. Loder et al.

Serial No.: 09/592,212

Filed: November 15, 2001

Docket No.: 55243US09

Title: APPARATUS AND METHOD FOR CONTROLLING THE BEND RADIUS OF AN OPTICAL FIBER CABLE

3. The method of claim 2, wherein the curves are in different planes.
4. The method of claim 1, the step of bending the optical fiber cable comprising the steps of:
providing a cable forming device having at least one mandrel, wherein the mandrel has a radius greater than a minimum bend radius for the optical fiber cable, and
wrapping the portion of the optical fiber cable about the mandrel.
5. The method of claim 4, the cable forming device including at least two mandrels, wherein the mandrels are attached to different phases of a support, and the cable is bent in an S-shape having two curves, the two curves being on different planes.
6. (Cancelled) ~~A bend radius control member for controlling the bend radius of an optical fiber cable comprising:~~
~~a deformation resistant heat-shrunk outer jacket wrapped around the optical fiber cable,~~
~~wherein the heat-shrunk outer jacket has a desired bend radius curvature.~~